

ABSTRACT

A medical pump, for use with a cassette having a pumping chamber, includes a pumping element with a piston slider assembly which intermittently pressurizes the pumping chamber during a pumping cycle and has a piston head connected to a main body with a single pressure sensor positioned therebetween. A camshaft is associated with the pumping element, an inlet control element, and an outlet control element for closing the pumping chamber to flow when the pumping chamber is pressurized. A processing unit receives pressure and position data from the pressure sensor and a position sensor associated with the pumping element, and processes this data to determine the operating condition of the pump. The operating conditions determined include: blocked fluid flow, no fluid in the line, no cassette associated with the pump, proper pump priming, or proper valve sealing.